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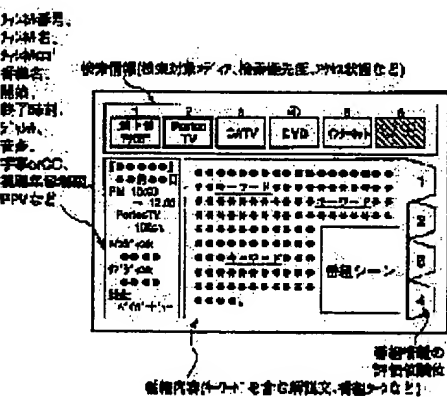(22)Date of filing :   **06.03.1998**   (72)Inventor :   **SEKINE MASANORI**

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(54) **SUPPORT SYSTEM FOR SELECTING PROGRAM AND/OR INFORMATION**

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a system where program information is retrieved and displayed seamlessly over the border of broadcast media and distribution media in the case of program retrieval.

SOLUTION: The selection support system extracts a keyword corresponding to individual program information or program relating information for each broadcast service or distribution media based on a keyword and generates an integrated program information database based thereon, evaluates a program in response to the preference of users and generates and displays unified program information over the respective media.

CLAIMS

[Claim(s)]

[Claim 1] the base [information / relevant to the received program] -- carrying out -- a program and a means to build an informational selection screen again, and the aforementioned selection screen -- using -- a program -- and -- or with a predetermined reference means, when informational selection is directed by the user Or the related information in other medias relevant to an information is also acquired. the program by which selection was carried out [aforementioned] -- and -- the program based on the information which made the whole new related information and gave predetermined priority to the aforementioned new related information -- and -- or the program which displays an information selection screen -- and -- or the program characterized by having an informational information selection screen-display means -- and -- or informational selection support equipment

[Claim 2] the base [information / relevant to the received program] -- carrying out -- a program and a means to build the informational information selection display screen again, and the aforementioned selection screen -- using -- a program -- and -- or with a predetermined reference means, when informational selection is directed by the user Or the related information in other medias relevant to an information is also acquired. the program by which selection was carried out [aforementioned] -- and -- the program based on the information which made the whole new related information and gave predetermined priority to the aforementioned new related information -- and -- or the program which displays an information selection screen -- and -- or with an informational information selection screen-display means the aforementioned program -- and -- or the information relevant to the program chosen based on the informational information selection screen-display means -- repeating -- acquiring -- the concerned program -- and -- or the program characterized by providing a means to use as an object for informational evaluation -- and -- or informational selection support equipment

[Claim 3] the program according to claim 1 or 2 characterized by the aforementioned related information containing at least one of the channel of a program, the content description sentence of a program, the program name of a program, the start time of a program, and the genres of a program -- and -- or informational selection support equipment

[Claim 4] In a program the aforementioned media besides the program reference information included in the control signal fraction by which accompanying sending is carried out as other medias The program information encoded between the vertical blanking intervals of a video signal, A program information acquirable from on internet and a related contents, CD-ROM, The program information acquired from the package

media distributed by service providers, such as a digital videodisc (DVD) the program according to claim 1 or 2 characterized by including at least one of data broadcasting transmitted [independent] with the program planned from now on -- and -- or informational selection support equipment

[Claim 5] The aforementioned information selection screen-display means is program reference equipment according to claim 1 or 2 characterized by searching the program information which suited the taste automatically and continuously unitary from the aforementioned media which can be searched when the pattern matched with a desired keyword or a desired keyword is chosen as the aforementioned related information once [at least].

[Claim 6] the program according to claim 1 or 2 characterized by searching automatically and continuously the program information which the aforementioned information selection screen-display means acquired and considered the information based on the operation for the information selection which the user performed in the past with the gestalt of a keyword, learned a user's taste, and suited the taste unitary from the aforementioned media which can be searched -- and -- or informational selection support equipment

[Claim 7] the program according to claim 1 or 2 characterized by a conformity judging of the keyword which is the related information which the aforementioned reference means uses being what obtained using the alphabetic information of the text fraction centering on the content description sentence of a program -- and -- or informational selection support equipment

[Claim 8] the program according to claim 1 or 2 characterized by having the means equipped with the unified keyword common irrespective of a program information-item format of each media as a database in order to memorize the keyword which is the related information which the aforementioned reference means uses -- and -- or informational selection support equipment

[Claim 9] the program according to claim 1 or 2 characterized by performing priority attachment of a program information by the frequency of occurrence of the keyword contained in a program information in the program information which suited the aforementioned keyword -- and -- or informational selection support equipment

[Claim 10] the program according to claim 1 or 2 characterized by having a program information-display means to display a program information screen on a media by automatic and continuously common format unitary not related apart from the program information-item display format peculiar to each with which each aforementioned media is equipped as standard -- and -- or informational selection support equipment

[Claim 11] the program according to claim 1 or 2 characterized by for other characters changing a foreground color, a font, a character attribute, and the status, and distinguishing and displaying the character string which may serve as a keyword on the aforementioned program information screen using the effect on a visual sense -- and -- or informational selection support equipment

[Claim 12] the program according to claim 1 or 2 characterized by attaching to a keyword whether a user is fond to a keyword candidate before, and it comes out, and the mark as which the meaning and grade of taste can guess it easily automatically to the keyword which is performing that setup out of which it does not like and come, already distinguishing on the aforementioned program information screen, and making it display -- and -- or informational selection support equipment

[Claim 13] the program according to claim 1 or 2 characterized by carrying out the list display of the media of the program which can be searched on the aforementioned program information screen -- and -- or informational selection support equipment

[Claim 14] The aforementioned program information retrieval means is program selection support equipment according to claim 1 characterized by having a thesaurus database for synonym, after [similar], and synonym acquisition, adding the related similar keyword about a reference setting keyword, and performing program information retrieval.

[Claim 15] The aforementioned program information retrieval means is program selection support equipment according to claim 1 or 2 characterized by fluctuating in adjustable and narrowing down a reference keyword even to the number of cases of a request of the offered information automatically according to the number of reference data.

[Claim 16] The remote control equipment for performing the aforementioned program information retrieval is program selection support equipment characterized by having a display means which makes it intelligible clearly that only a candidate's button which the position of the button on remote control equipment is the arrangement in alignment with flowing of operation, and should next be operated differs from other buttons.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention -- a program -- and -- or the program which searched automatically a program information, program related

information, additional information from a medium used as the broadcasting station which serves as all possible program reference objects especially, or an information retrieval object, etc. about informational selection support equipment, and suited liking of an user -- and -- or it is the equipment which built the informational selection screen and improved an user's user-friendliness

[0002]

[Description of the Prior Art] As it is in JP,9-146964,A or JP,7-162776,A, when searching a program information etc. in a broadcast receiving set etc. conventionally, the program additional information by CD-ROM and the broadcast wave etc. has the individual reference for every single media.

[0003] However, many medias have appeared in recent years. As a media, there are various broadcast medias from which a method is different or an information media, a storage, etc. If an user is going to acquire a favorite program or a favorite information, there is the need for selection processings, such as a program information, for every media.

[0004]

[Problem(s) to be Solved by the Invention] As described above, although many medias have appeared in recent years, about each media, by the user having performed program reference, information sorting, etc., it is very inconvenient and time also becomes such a thing.

[0005] then, the media of a plurality [invention / this] -- crossing -- seamless stockings -- a program -- and -- or the program which searches information related information, carries out reference arrangement of the related information of these two or more medias, and can be unified -- and -- or it aims at offering information selection support equipment

[0006] Moreover, this invention is acquisition (an acquisition, an extraction, election) about the favorite keyword of users, such as a user's operation history to a program performer. The program or information list (related information) which suited a user's selection inclination is built, and it enables it to obtain the information screen by carrying out and utilizing [accumulate and].

[0007] And it aims at an user enabling it to acquire the broadcast receiving set which can make easy the program over between many medias, or information selection and technique, a broadcast transceiver receiving set and technique, program selection support equipment, and technique.

[0008]

[Means for Solving the Problem] Or when informational selection is directed by the user,

it is a predetermined reference means. the base [information / relevant to the program in which this invention was received] -- carrying out -- a program and a means to build the informational display screen again, and the aforementioned display screen -- using -- a program -- and -- the program by which selection was carried out [aforementioned] -- and -- or the program based on the information which also acquired the related information in other medias relevant to an information, made the whole new related information, and gave predetermined priority to the aforementioned new related information -- and -- or the program which displays an information selection screen -- and -- or it has an information selection screen-display means

[0009] The reference which used the related information of the program doubled with liking of an user or an information over between many medias by the above-mentioned means is realizable. In this case, an user does not need to be conscious of the difference in a media. moreover, the program of liking [domain / large] -- and -- or an information is acquirable

[0010]

[Embodiments of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing. It is an information relevant to the program supplied into this specification from the information supplied by the record media by which vocabulary "the information relevant to the program" was supplied for EPG, such as an information and CD-ROM, and WWW (WorldWide Web) etc., and if it is an information about a program, it is good anything.

[0011] Drawing 1 is a block diagram showing the whole television channel-selection equipment configuration concerning the gestalt of 1 operation of this invention. The broadcasting station 11 which uses a Hertzian wave as a signal-transmission medium, the broadcasting station 12 which uses a cable as a signal-transmission medium, ISP (Internet service provider)13 which uses the telephone line as a signal-transmission medium, and the digital videodisc (DVD) device 14 which uses a domestic bus as a signal-transmission medium are shown in drawing 1 as various kinds of medias.

[0012] The broadcast wave which delivers the program from a broadcasting station side is not asked about a cable radio, but a content explanation and program related information of a program have been multiplexed and sent with gestalt, such as a text format, html (hyper text markup language) format, and an image format.

[0013] A television set 100 has the tuner 101 which tunes in a receiving channel, and the decoding separation section 102 which separates the program information which decodes a program and was again multiplexed by the program. The picture signal decoded in the decoding separation section 102 is controlled by the program

display-control section 103, and is supplied and displayed on a display (for example, CRT section) 104. The program information separated in the decoding separation section 102 is inputted into the program evaluation section 105 which calculates the priority of a reference result.

[0014] 110 is keyword storage section which records databases, such as a reference keyword, a program information, etc. based on a televiewer's taste. This keyword storage section 110 is connected to the program evaluation section 105. In relation to an operation of this program evaluation section 105, the program display-control section 103 can be shown to a televiewer from the program with a high priority. Furthermore, the television set 100 is constituted including the remote control light-receiving section 106, TA (terminal adapter) for connecting with internet etc. through the telephone line or the modulation recovery (following modem) section 107, and the home birth control section 108 for controlling the external instrument connected to television.

[0015] In addition, since the synchronous system which constitutes a television set, the voice section, the power supply section, etc. are the same as that of the conventional TV apparatus, they are omitted in drawing 1 . Moreover, although the remote control equipment 120 is equipped with the modulation section which is doubled and carries out light modulation to a remote control protocol from the various switches for a television control, and a switch, it is omitted in drawing 1 .

[0016] The hardware configuration by the keyword storage section 110 of a television set, the program evaluation section 105, and the program display-control section 103 is shown in drawing 2 . Implementation of the function is performed by performing the program in which the central arithmetic unit (CPU) 201 was stored in the read-only memory (ROM) 202 for a program.

[0017] CPU202 whose hardware is a microprocessor as shown in drawing 2 , The interface (following IF) circuit 203 for inputting a dynamic-image information and a program information from the decoding separation section 102 of drawing 1 , RAM 204 used as the workspace of programs ROM201 and CPU201 which stores a program (RAM), It has FRAM for keyword databases205, database ROM206 for thesaurus (index equipped with sort word lexicon, synonym lexicon, etc. for information retrieval) reference, and VRAM for information displays207, and each element is connected through the system bus 208.

[0018] Drawing 3 is a block diagram showing the detail of the program evaluation section 105 of the television set concerning this invention and a keyword, the keyword storage section 110 that has memorized the program information database, and the program display-control section 103.

[0019] The program evaluation section 105 evaluates how much the concerned program conforms to a televiewer's taste for every program based on the keyword and program information which are accumulated at the keyword storage section 110, and calculates the evaluation value.

[0020] For this reason, the program evaluation section 105 is equipped with the evaluation value operation part 303 for carrying out integrated arrangement of them and collating the program information corresponding to the keyword-extraction section 301 for every broadcast media, the keyword frequency-of-occurrence addition section 302, and these keywords, and is constituted.

[0021] The keyword-extraction section 301 extracts the character string which serves as a keyword candidate from a program information using well-known technique, such as gestalt element analysis. The keyword frequency-of-occurrence addition section 302 integrates the duplication keyword which appeared for every program information, respectively (the ambiguous reference technique not only a strict correspondence of character code but in which collating of a keyword is well-known is applied).

[0022] The keyword collating operation evaluation section 303 calculates a program evaluation value from a keyword frequency of occurrence and each weighting coefficient using the below-mentioned performance index. The keyword storage section (database) 110 memorizes the parameter for the program reference reflecting a televiewer's taste (a keyword, weighting coefficient).

[0023] All keyword candidates match with a weighting coefficient, are database-ized and can use for next reference. For this reason, the keyword storage section 110 matches and memorizes weighting ****** how much the program by which the keyword extracted from the program information and this keyword are contained in a program information has fitting to a televiewer's taste. And the program display-control section 103 displays each program based on the evaluation value by the program evaluation section 105.

[0024] By the way, generally various kinds of programs and EPG (program information service) service which are rationed by package medias, such as DVD, CATV circuit, tele circuit, and the broadcast wave for program picture viewing and listening can be used at home. If these services are described more concretely, it will be set to following 1-4 at least, for example.

[0025] 1) All the informations on the internet sent from the access point of an Internet service provider business firm, a contents.

2) Program information incidental to all the programs transmitted by specific service (a perpendicular blanking term (VBI) multiple signal or SI signal).

[0026] 3) The program information on the format acquired from the package media

distributed by service providers, such as CD-ROM and DVD.

4) Data broadcasting transmitted in parallel with the program planned from now on.

[0027] this invention is divided, receives the electronic program guide (EPG) from each service, it provides a user with it like a single service, without being conscious of the difference in each troublesome service compartment, and aims at raising the convenience of the user at the time of program reference.

[0028] However, in these cases, the problem on a management (enterprise) also has the data format, a screen-display configuration item, etc. as having EPG in which it is not unified and all program information services have common compatibility over the future, and, generally each EPG seldom considers them. That is, specifically, even if there may be possibility of the integration in the same transport EPG of the interior, such as a ground wave, and BS, CS, EPG which unified these and which interlocked unitary further including the distributed contentss, such as CD-ROMs, such as a magazine, and DVD, is unlikely to be realized.

[0029] However, although the number of the television screens as hardware will be one and where a channel and a media are when it sees from a user side, it is good anyhow. That is, although a user's purpose is watching a favorite program, it accustoms and the present condition has the problem which does not originally need to be carried out that the complicated work which may not be must be performed, such as applying time individually for every service for the reason, and looking for a favorite program.

[0030] Then, in this invention, a program information is searched using the keyword (related information) automatically accumulated by a user's program viewing-and-listening history, and two or more medias which can be searched are distinguished automatically. And an user's favorite program or favorite information is searched to each media. Moreover, an user's taste information is learned and it enables it to extract automatically the contents in which the information [that a user wants to see] is included.

[0031] Thereby, it can provide as one program information source unified when seeing from the user about all of the programs with an accessible user, program informations, and program information retrieval services (from the keyword train extracted out of the text of EPG regardless of an information format and protocol of each service to evaluation). Without being conscious of the difference in a service, it can receive, and an user can compose and can get the guide of a program or an information unitary over each service.

[0032] Difficulties in case a user searches the program information offered from various service providers within predetermined time with the keyword database containing this

user's taste information are reduced remarkably.

[0033] Moreover, in a proior art, you have to perform a favorite setup of a user to TV device side by a certain input means and technique (conscious and an unconscious target are not asked) yourself [user] theoretically. In this case, in order to demonstrate function sufficient by the technique which is considered conventionally, an initial configuration complicated before use start of a device and huge, i.e., a keyword (user's taste information) input, is the need (this invention is also possible by arbitrary setup of a user), and a user's burden is finished with the result seldom used after all, even if it is large and the performance of the retrieval system [itself] is high.

[0034] Moreover, when a reference result became a huge amount, the user needed to extract the favorite contents out of it. A favorite program can be discovered, without according to this invention, accumulating liking of a user as a keyword to a device (automatically) side as it is natural, and being conscious without a special initial cofiguration (you having to carry out most number of keyword specification by the conventional equivalent reference in this case) of especially program reference operation, if the user is viewing and listening to a program.

[0035] Moreover, with the equipment of this invention, to the keyword candidate in the description sentence in EPG currently displayed on the screen, himself [user], it can choose [a favorite keyword and] directly whether it is fond and comes out, and it can also carry out program reference on that spot.

[0036] In addition, the data structure from each service provider or information data feed (sent-in data), the communications protocol with each interface, etc. are boiled, therefore the conventional knowledge is used.

[0037] if preliminary knowledge is given about the data structure and communications protocol for each service, respectively -- the program information from each service -- probably -- ** -- it is natural for it to once be buffered by format of it separate exclusive use (store), and to also make it display on the service originally -- although it is possible, usually, from a user side, each service is unified and it is displayed as a program menu from an information pool unitary exceeding a media Therefore, an user can acquire the program information offered from such a seemingly single program information database.

[0038] Next, the example of retrieval by keyword is explained with reference to drawing 4 , the drawing 5 , the drawing 6 , the drawing 7 , and the drawing 8 . Moreover, the simplest example of a reference operation and evaluation value calculation of a program information is explained. Drawing 4 is an explanation of a program selection screen and the so-called usual EPG screen.

[0039] First, it is on remote control in order for a user to display usual EPG in choosing a program. "EPG" A button is pushed. The usual program guide matched with a channel which this shows in drawing 4 , and televising time is displayed.

[0040] On the basis of this race card, a user operates the cursor button on remote control, and chooses a desired program with a decision button. Then, as shown in drawing 5 , a desired program is displayed and the description sentence about the content of a program and channel name other than a program picture are displayed.

[0041] If it is the program which is not pleased, a user should just view and listen as it is, if the displayed program is pleased, he returns to the aforementioned race card, and should just repeat and choose a desired program again here.

[0042] In this case, if it continues viewing and listening to the program fixed time a user to be (in this case), it is. A rate [as opposed to / to all programs / from the first / the televising time of the concerned program in simple elapsed time], that is, you may take into consideration by what% the whole program viewed and listened, and various setup is possible -- it is recognized as the program being a program included in a user's mind, and the storage store of the related information about the concerned program is carried out as a keyword at the keyword storage section 110

[0043] In this case, the information according [time] to the time zone of a day and a day of the week is taken into consideration in the type of a weighting. Moreover, what can carry out effective practical use of a genre, a program name, the content of a program, etc. only as a mere keyword purely according to each language property, respectively uses.

[0044] Drawing 6 is drawing for an explanation of a continuity EPG screen. Next, reference by the continuity EPG screen is also the characteristic feature section of this invention. The operation for starting this reference is explained. First, while the televiewer who is going to do program reference is doing the aforementioned usual EPG operation (of course and the time of having not carried out are sufficient), the reference mode of continuity EPG is started by choosing the continuity EPG on the screen of drawing 5 , or pushing the continuity EPG button on remote control (referring to the drawing 16).

[0045] Then, the reference means in the program evaluation section 105 makes a default program related information related with the keyword of the program to which it was viewing and listening best by the program reference to last time, such as a picture of a persons [several] favorite performer high order which utilizes a user's taste information currently automatically stored as a keyword information until now, for example, is shown in drawing 6 , and displays it on a screen. (**** is sufficient as especially a

program information screen when a user's taste data are the initial state which is not yet stored.)

And a user is a continuity EPG initial screen (although classified as a volume for persons in this case, if it is the noun which expresses taste, such as a sport team name, food, and the name of a place, to others, it is good anything.) which is this information selection screen. Moreover, it is not necessary to carry out a sort. Favorite "actor B" is chosen from the older candidate, and the decision (reference start, selection) button of remote control equipment is pushed. (The keyword acquired by remote control operation in drawing 6 is stored in RAM for work.)

From this, the signal which shows that the reference start button was pushed on the television set from remote control equipment is sent, and the reference means by this invention starts reference of a program information.

[0046] in this case -- the picture of "actor B" -- for example, -- "Actor B" ** -- the keyword to say matches -- having -- **** -- reference means "Actor B" It considers as a keyword and searching the program on which "actor B" is appearing from the inside of EPG is started (text reference is used as concrete technique).

[0047] A user is "actor B" like the time of usual EPG operation also in this case. The information are fond is accumulated at television and it can profit as an information for next program reference. It is simultaneously parallel or is World by time sharing. Wide A contents is discovered by the keyword "actor B" also by the search engine on Web.

[0048] Thus, the judgment function which judges an user's program taste nature is prepared in the control section. And if the taste nature is known, the function which searchs the program suitable for an user's taste nature is prepared including other medias. And it is constituted so that the program selection screen suitable for liking of the concerned user may be built. Therefore, when performing such a function, an user's original ID may be inputted and saved and a race card may be created for every user who uses a device. You may prepare the function which creates the global race card to further two or more users.

[0049] Moreover, although the selection screen for whole medias was created by ******, the function classified for every keyword in which the user specified the program information collected from each media is prepared, and you may enable it to obtain a whole media program selection screen from various orientation. In order to realize this function, it is possible by table-izing each program information and a keyword and memorizing them. Of course, an update and deletion of a part of the content are possible.

[0050] When also performing ambiguous reference in a program search, a thesaurus database is accessed, a related keyword group is extracted, and it stores in work

RAM204 similarly. Subsequently, a keyword candidate is acquired from the program information on each channel (text fraction of EPG) by the gestalt element analysis (program information is caught and classified [analyze and] as each keyword) keyword.

[0051] The keyword of the program information loaded to this extracted keyword candidate and RAM of user specification is compared, the addition accumulating totals of the congruous number of timess (the number of keywords contained in the information) are carried out, and it considers as the evaluation value of the program. (Since the number of keywords is one in this case, he has a priority and no weighting coefficient) And the program database matched with the keyword is created. (The number of inclusions of the keyword contained among each program information is also counted.)

In addition to the corresponding keyword, the following items are included in this database. 0) The source of a program evaluation value, one index (serial number), 2 program name (title), three channels (information required to be able to specify the source of the programs source, such as a media modality and a broadcast modality), 4 broadcast time, five content (description), the keyword candidate group (table) with 6 inclusion number, and 7 program information, a script required for 8 external-instrument control, etc.

[0052] Next, the most desirable program deduced from a past user's operation information is displayed on a screen. Supposing a user views and listens to the shown program, the weighting according to the viewing-and-listening frequency and time will be performed to a keyword. If it does not view and listen similarly, a negative weighting will be carried out and learned in the keyword relevant to the program.

[0053] Since it is shown in the screen of CRT simultaneously with it that the broadcast media which is a reference object is accessing, an icon blinks. Moreover, you may display the guide screen in which ****** reference accessed is shown (refer to the drawing 7).

[0054] The program information applicable to a favorite keyword is acquired from EPG information (pickup, listing), and the program information that a priority is high is shown. Or the random display from the order with a low priority is sufficient by the liking at that time (refer to the drawing 8). Drawing 8 attaches the number in the order of the media with a high reference priority. Moreover, the number of the media under reference is surrounded with a circle. Furthermore about the media of the outside for reference, it considers as different colors.

[0055] Next, a series of operation of these reference is explained using a flow chart. Drawing 9 is a flow chart view explaining a reference operation of the television

channel-selection equipment in the gestalt of this operation.

[0056] First, in step S1, as shown in drawing 6 , on the screen, a favorite performer's photograph is put in order and it is displayed, and a user chooses a most favorite performer in it. And reference is started when a user pushes a reference start button in step S2.

[0057] Next, a keyword candidate is extracted by technique, such as gestalt element analysis, out of the text of EPG of each program information offered from each broadcast service at step S3. It collates with this keyword candidate and the favorite keyword of the above-mentioned user specification in step S4.

[0058] And when it is accepted that the keyword agreed in the following step S5, the agreement keyword number progressed and contained in step S6 is counted, the concerned program information is matched with the agreement keyword and its number, and it registers with a program information database.

[0059] Then, in step S7, an evaluation value is computed by the performance index, and it sorts on the basis of this in the precedence with a high (the first time has many counts) evaluation value. (The first time is sorted for the time being, although it is not necessarily the precedence of an user request) . And in the last step S8, the program information after an operation that an evaluation value is the highest is shown to a user.

[0060] It is the flow chart which shows the operation at the time of the program information re-reference used so that it may want to add the program started newly as an additional menu case [when a favorite program information comes to seldom appear, or] in drawing 10 . It explains for details later.

[0061] Next, the example of a display by the screen-display technique of this invention for notifying a reference result is explained. Drawing 7 is also an example of a result which searched the program in this way again. Of course, a menu can display various items not only in the item currently displayed on the example of a screen but in the type which included all the items from a service respectively.

[0062] If a title, a start time, and relevance have each broadcast media (for example, CATV, tele circuit, a broadcast wave) about the program information applicable to the keyword and there are a program and relevance as shown in drawing 7 , it will be made a list with a cost. Various display gestalt is possible, without also restricting these displays to the gestalt explained here.

[0063] In the example of this invention, an onscreen menu generates the database which carried out collating arrangement of the program information from two or more services, and it not only displays the thing from each service as it is, but unified it, and the menu unified based on this is displayed.

[0064] that is, established [from the format which customized the displayed menu uniquely within seamless stockings TV, and each service provider] -- it may be displayed at the time of [both] following EPG

[0065] Usually, all of EPG services obtained from EPG of each service are displayed from this unified output. The existing EPG service which is above usually includes the program display by the type exception, subtypes (for example, movie, news, etc.) exceptions (for example, a movie:comedy, a drama, a mystery, etc.), etc. For this reason, in seamless-stockings reference, each of these types can also be incorporated as one of sub keywords, and effective practical use is attained in unific (seamless stockings) program reference over various kinds of services by giving a suitable weighting coefficient.

[0066] Moreover, as shown, for example in drawing 11 , into the program information text, other characters in a text change a color and are displayed to turn out to be it clearly by the user -- the character string (following and keyword candidate) which may serve as a screen top keyword for the continuing reference is classified by color.

[0067] thus -- for displaying that it is a keyword candidate -- the inside of the description sentence of the program information screen -- merely -- inversion -- ******** -- since it is displaying that it understands intuitively, it is not necessary to display the menu screen for keyword selection etc. separately, and the effect that part effective practical use can be carried out exists a viewing area

[0068] moreover, it will obtain, if a user becomes complicated at the time of selection and the content of each program information cannot fully be displayed, even if the display area of TV screen is restricted and it carries out the menu display of many program informations at once, when carrying out a screen display of this searched program information, and there is a problem

[0069] At this time, the user is able to do the following setup arbitrarily if needed. by narrowing down the number of cases displayed at once, to only one program information on a screen display (or pieces [several / only] **), the user said mind or was not pleased in this invention -- simple binary decision -- carrying out -- ****ing (this operation being also required when /, such as narrowing-down reference, / carrying out a keyword addition -- but) That what is necessary is just to carry out binary decision of whether it was pleased to each keyword, or it is not pleased By repeating this quickly [learning and feeding back the decision result to last time each time] in this status one by one according to designation of a guide screen Without afflicting the head, quickly and automatically, there is no unreasonableness in selecting one from many program informations, and a desired program can be chosen as it (navigation function).

[0070] Moreover, if it is the former as which a channel is tuned in in order to the last since it can understand a user on experience that it is a program to regard the shown program information most if the evaluation value operation by this invention was learned enough, all programs are sorted out in the head after that, and which determines whether it is an optimum program, the time which is often likely to be performed can be saved and it is efficient.

[0071] Moreover, when specifying by button grabbing on remote control and it is pleased instead of a character to a button, an icon mark for which a character like a laughter face is clearly understood also to the small child who cannot yet read, and when it is not pleased similarly, you may carry out decision of whether it was pleased over the displayed program itself at this time to the angry icon marks, such as a tearful face or a face.

[0072] Moreover, as a result at the time of repeating re-reference which will be described from now on below, as shown in drawing 15 from drawing 11 , among the keyword candidate currently displayed, what the user already used before made the weighting coefficient reflect, for example, the mark of Ox etc. is attached.

[0073] however -- the case where the favorite information over a keyword is displayed like [in this case] -- being mere -- ****** -- etc. -- **** -- the user has to know semantic attachment to the display as an information, and a user's load increases Moreover, it is hard to use the user who does not know that by the user who operates it for the first time.

[0074] According to this technique, it is made to display on the mark display, such as Ox, itself by the mark which can understand a meaning intuitively, and the user only looked through the display and also tends to grasp a selection result.

[0075] Namely, specification of O, x, etc. has a meaning in itself [mark], and a user is effective in the ability to guess easily, even if preliminary information does not have automatically that O is a favorite keyword and the keyword out of which x does not like and come.

[0076] It can see, if a user wants to watch the concerned program immediately now after a display of a program information as a result of the above-mentioned reference and the program of the program information chosen by pushing an end button, for example at the time is broadcast at the time. Moreover, what is necessary is to push a reservation button to reserve, and to end after that, or just to perform another following reference.

[0077] At this time, it is possible to display only the information on the day arbitrarily, or to be only a certain time zone and moon, or to search and to also make it restrict and display on a certain broadcasting station and media according to liking.

[0078] However, when the program of the program information displayed when learning was not enough, the time of about [which a keyword database newly began to create], is not pleased, the priority by the number of keyword conformity may not necessarily be in agreement with the priority for which a user asks, and, for this reason, the readiness (operability) of re-reference becomes important (display which is known by intuition also in the time of the first operation).

[0079] First, what is necessary is not to perform re-reference to see other program informations [be / no current update etc. / in a favorite keyword], and just to display the program information on the following precedence which carried out reference sorting on just before.

[0080] By getting it blocked, a user will push it, if the following term button which specifies the following program information on remote control is prepared, or it is on a screen. "Program [degree] information" The focus of the fraction to specify is carried out and the selection button on remote control is pushed. Or if the above-mentioned reference start button is pushed, without newly carrying out the current update of the keyword, the program of the following precedence will be displayed. The latter is better in order not to increase the button on remote control superfluously. However, it is exclusive use when the following re-reference operation is taken into consideration. The "following term" and the "preceding clause" It is better to prepare a button.

[0081] Thus, usually, even if especially a user next does not do keyword specification etc., it evaluates to a program using the keyword information accumulated by the point in time, and the program automatically considered that a user is fond is displayed.

[0082] (Although the present display program was not pleased, when a favorite keyword is in the keyword candidate in the program information and additional specification of it is carried out), a program information is re-searched at high speed and the retrieval system which extracts and puts the program of a user request is needed to carry out additional (or new) selection of still another keyword candidate in the program information displayed on the screen, and re-search him with liking of positive/negative on the other hand.

[0083] Since according to this invention a user's favorite keyword (or it is not fond) (**) in connection with the time of program selection in the user makes a keyword database correspond to a weighting coefficient and is recorded on it after last time (store) The wait relation between what these informations are considered for using an evaluation formula, i.e., a primary parameter, and a subparameter etc., It always calculates dynamically and is optimized so that a user's past may carry out selection result reflection with a weighting parameter, and the program of a user request can be

sponsored quickly.

[0084] In addition, a user's program selection result can be made to be able to feed back to an optimization of a weighting coefficient, and various kinds of conventional well-known optimization techniques can be applied. For example, out of the keyword candidate currently displayed to turn out to be it -- inverse video is carried out in the text (description sentence) of the program information displayed on the screen -- in order that a user may choose a favorite keyword (or it is not fond) to narrow down, he does a focus by the operation using remote control etc., and pushes a selection key.

[0085] It is effective if it jumps lengthwise in the nearest phrase from the keyword of a moved material by selection of the phrase covering [covering selection of the keyword in the line in the horizontal arrow head] spacing in the cursor advance between the keyword candidates in a text.

[0086] Moreover, it is possible for flattery of cursor to be interlocked with and to also make the area which was not able to be displayed on a screen in this case scroll (for example, for the fraction by which the focus is carried out with cursor to come in the center of a screen if possible like).

[0087] as behavior of the selection operation at this time, a selection button is pushed once, for example -- ** -- as [understand / the specification status / the applicable keyword position on a screen / it is alike, a toggle operation is carried out with a favorite keyword, a keyword, selection cancellation, etc. not to like, and] -- "O" The mark and "x" "It being nothing (clear)". etc. etc. -- it is made to display / it being / a mark / and

[0088] moreover -- this O mark and x mark -- not only one kind but a size, and brightness -- changing -- a weighting factor -- responding -- two or more steps floor -- you may prepare Or you may choose, process and display what understands intuitively favorite cases, such as highlighting and a italic character, and the case where that is not right, for the keyword itself.

[0089] Apart from the selection key of the above-mentioned status specification, if the button of the exclusive use for telling equipment about having chosen is prepared, jumping for the next keyword candidate automatically is also possible by pushing this button.

[0090] Also about the status-display technique of this keyword, by being translucent on a keyword and carrying out a staining display, it was considered so that it might not become offensive to the eye [the explanatory note of a program (it has become also about this color as / become / the color scheme as which a common man senses natural the color in favorite, and the color in the case of it being fond and not coming out]) information text /.

[0091] Thus, since the status display of a keyword is not offensive to the eye, when the keyword by which weighting ****** is carried out already appears in a program information in a keyword database, the keyword status (an user's taste) reflecting the weighting coefficient can be displayed, without causing trouble to **** of the description sentence of a program information.

[0092] moreover -- that whose evaluation value of a program information screen is high precedence on remote control **** -- low -- exclusive use for making it display over a precedence thing The "following term" and the "preceding clause" If a button is prepared, it is possible to set up and re-search a keyword over No. two or more group information screen.

[0093] In addition, **** between the precedence of such a program information screen utilizes and describes above the ten key on remote control. The "following term" and the "preceding clause" It is possible to also make precedence specify and jump direct as substitution of a button. Latter one is excellent in operability when there are few information screens (0-9).

[0094] And when a user already loses keyword to choose, he pushes a "reference" button. If it does so, on the basis of the keyword information set up above, the reference equipment by this invention will calculate an evaluation value, and will present the program information on the maximum precedence.

[0095] Thus, a keyword can be chosen directly and a user can also discover a program to watch efficiently from a favorite keyword by repeating re-reference. In addition, since it can carry out like the case of former reference, the process from the behavior of the selection operation at this time to re-reference reevaluation is omitted.

[0096] Next, a series of operation of these re-reference is explained using the flow chart of drawing 10 . First, a keyword to add by re-reference is chosen and inputted in step S13. Next, in step S14, all the program informations applicable to the keyword are acquired out of the text of EPG offered from each service like the above-mentioned reference. And the program database (index) matched with the keyword is created. (The number of keyword inclusions in each program information is also counted.)
Then, it sorts on the basis of evaluation value calculation and this by the performance index in the precedence with a high (the first time has many counts) evaluation value. (The first time is sorted for the time being, although it is not necessarily the precedence of an user request) . And in step S11, the program information of the most significant or the 1st priority (up to the 2nd and the 3rd place) is displayed.

[0097] When not considering this as a reference end in the following step S12, it progresses to the following step S13. In addition, since it is the same as that of the case

of above-mentioned view 9 , the detail of the reference operation in step S14 is omitted.

[0098] In this example, although the case where the keyword specification technique carries out menu selection of the keyword candidate in a program information screen is explained from the viewpoint which raises the operation luminous efficacy of re-reference, of course, it is not necessary to necessarily choose a setup of a keyword from the candidate in a screen, and the direct input of the keyword which is not on a screen using input devices, such as remote control and a keyboard, may be carried out.

[0099] In addition, as shown in drawing 16 , the button arrangement in which the remote control equipment by this proposal met flowing of the operation to the upper and lower sides is made, and this is effective in the ability to perform button grabbing which met flowing of thinking for the user.

[0100] In addition, you may measure the facilities of operation of a user further, such as making only a candidate's button which is on remote control and should next be operated turn on etc. Moreover, a former keyword is canceled by the case, there is a case where he wants to perform program reference newly, and a user is on remote control in this case. "New reference" The button to specify is pushed or it is on a screen. "New reference" The focus of the fraction to specify is carried out and the selection button on remote control is pushed.

[0101] At this time, the last main keyword is canceled as a main keyword (by the case). a negative weighting may be carried out and you may register with a keyword database It becomes the new reference mode, and inverse video, blink, etc. carry out a reference mode button, and highlighting is visually carried out so that it may turn out to be it also on a screen (generally, blink is offensive to the eye to the things which it continues displaying over a long time comparatively, such as the mode status, and it has not turned [things] to it).

[0102] The reference operation which follows this is the same as that of the above. Moreover, since a program will advance rapidly if a program while broadcasting at the present time also in ****** is not chosen early, it is asked for high-speed reference. For this reason, since it may be the program for which the user is asking even if the priority judged by TV side is low, it displays preferentially, and it is under televising, and tunes in automatically in the program with the highest priority, for example, the right half of a screen is made to carry out a reference result display in a program and the left half.

[0103] Or it displays on a child screen and the frame is colored, and in order to tell that it is under televising now, you may carry out blinking a frame etc. Moreover, when set as the object of program reference, it is also possible to give functions, like automatically, hold the program to storage and it carries out a time shift by mounting the algorithm in

program ROM.

[0104] Being variously changed by a user's arbitration cannot be overemphasized about these above setup. By repeating the above operation, operation of a user can be managed for a short time, and can discover a desired program quickly.

[0105] According to this search method, reference precision increases as the above-mentioned keyword database is substantial, and it is effective in the ability of a user's favorite information to start finding it easily earlier.

[0106] Moreover, since it will be preferentially displayed from what has many keyword numbers of counts (what televising time is approaching in addition) according to this invention which a lot of program informations correspond and spoils a user's selection ease if it refers to a more general keyword, it is effective in program selection time being shortened.

[0107] These reference results (progress is also included) make a keyword and a weighting coefficient correspond, are recorded as a user's favorite keyword database, and can be made to reflect in next reference as a supplementary keyword for information narrowing down.

[0108] Moreover, by accessing a thesaurus database, by using the ambiguous similar word about a reference keyword as a support keyword, reference precision is raised and, according to this invention, it is effective in shortening retrieval time.

[0109] In addition, in this example, although the thesaurus database is given to the flash ROM in TV equipment, it may let uphill circuits and the telephone lines, such as CATV, pass, an external database may be accessed, and it may process, or it may download the newest information from an external database, and may rewrite an information.

[0110] Moreover, it is World, if an immense quantity of the contents generally exists on internet, two or more search engines exist to these and it uses, combining these well. Wide It is effective for the favorite contents reference on Web.

[0111] Then, the program search method by this invention is World, without being limited to a program. Wide Reference viewing and listening according to a favorite keyword also to the contents on Web is possible.

[0112] however, in the reference currently performed on such a conventional personal computer In order to discover the favorite target contents out of a huge information intuition and the search engine by experience are advanced, even if it masters, and ******s and it uses automatic round software Then, there is a problem that a user has to find out the information on target manually out of the huge contents collected automatically. If it says which perform program reference and it is, seeing TV, it is WorldWide in passing at the favorite keyword for the program reference. The search

method which such a personal computer user performs to the user who wants to view and listen also to the contents of Web is not suitable at all.

[0113] In addition, generally, although specification of AND, NOT, and OR of many of search engines on internet was completed about the reference keyword, it had the problem that it could not search to each keyword reflecting a weighting coefficient.

[0114] According to the reference means by this invention, reference start is carried out from the favorite keyword of the most significant, and it is enabled to carry out AND of the favorite keyword of the following precedence, and to narrow it down one by one until the reference number of cases is narrowed down a suitable number (1-several affairs).

[0115] Simultaneously, from the maximum precedence, NOT specification also of the keyword not to like is carried out one by one, and it is added. With this technique, it is World by doing so. Wide By the favorite keyword, the contents on Web also becomes possible automatically with a user's favorite ranking injury nature.

[0116] Moreover, in reference, the priority attachment means by this invention can also perform easily processing of excluding the same contents searched by multiplex among two or more search engines. The above technique is usable also as a search method on the Internet which used the personal computer.

[0117] Moreover, independently [EPG offered by the broadcast wave with a program], almost all the broadcasting industries company has established the homepage on internet, and, generally, in many cases, offers the information about a program now.

[0118] If URL corresponding to this broadcasting station is offered beforehand, with the equipment by this invention (if the directory only for program informations is known, in addition, it is desirable), this is also easily utilizable.

[0119] World in which retrieval by keyword also of this is carried out like the above, and it contains the keyword Wide A Web page is displayed. Moreover, the user is able for click selection etc. to carry out the predetermined fraction of html file, and to perform channel selection, a ** automatic reservation, etc. automatically if the command which can recognize TV side in the concerned html file was embedded in this case.

[0120] In addition, it can correspond to acquisition of the contentss on the above-mentioned internet (html file etc.) by carrying the manipulation routine using the well-known algorithm currently used for the automatic round software which is generally used with the personal computer in program ROM through the modem section.

[0121] < used for this invention below Calculation formula [of a program evaluation value] > It is shown.

* Performance-index f() which calculates reference evaluation formula program evaluation value V is V. : Program evaluation value n : Setting keyword number

(modality)

A**x** : x 番目のキーワード出現頻度(出現回数)

A**x** Σ(x番目のキーワード)

k**x** : x Generally it can describe as follows as a weighting of the keyword of watch precedence.

V=f (A1, A2, --, Ax, --, An, k1 and k2, --, kx, --, kn, n)

Moreover, px : Priority precedence (px= 1, 2, --, i<=n)

c**x** : x As the number of occurrence count upper limits of the keyword of watch precedence, it is kx. It can express kx =f'' (px, cx). - Example of expansion (1) (in the case [Wholly / in n pieces / A keyword] / of the same priority)

$$V = \sum_{x=1}^{n} Ax$$

- Example of expansion (2) (when the priority of n phase exists [a keyword] by n pieces)

$$V = \sum_{x=1}^{n} (kx \cdot Ax) \quad , \quad kx = 1/ px \text{ など}$$

- Example of expansion (3) (there being a keyword number-of-times upper limit cx of an occurrence in n pieces and a priority n phase)

$$V = \sum_{x=1}^{n} (kx \cdot Ax'') \quad , \quad kx = 1/ px \quad , Ax'' = \min(Ax, cx)$$

- Example of expansion (4) (when the priority of i (<n) phase exists [a keyword] by n pieces)

It is i about Ai'. Keyword group frequency of occurrence of watch precedence (number of times of an occurrence) It carries out.

$$V = \sum_{x=1}^{i} (kx \cdot Ax') \quad , \quad kx = 1/px \quad , \text{ただし} \sum_{x=1}^{i} Ax' = \sum_{y=1}^{n} Ay$$

(Deformation 1)

ki Variable-izing ki =f (ci) As the weighting-factor change above was carried out according

to the number of times of an occurrence, : this invention the base [information / relevant to the received program] -- carrying out -- a program and a means to build the informational display screen again, and the aforementioned display screen -- using -- a program -- and -- or with a predetermined reference means, when informational selection is directed by the user the program by which selection was carried out [aforementioned] -- and -- or the program based on the information which also acquired the related information in other medias relevant to an information, made the whole new related information, and gave predetermined priority to the aforementioned new related information -- and -- or the program which displays an information selection screen -- and -- or it has an information selection screen-display means

[0122] The reference which used the related information of the program doubled with liking of an user or an information over between many medias by the above-mentioned means is realizable. In this case, an user does not need to be conscious of the difference in a media. moreover, the program of liking [domain / large] -- and -- or an information is acquirable

[0123] Moreover, on the basis of the received program related information, according to predetermined user designation, this invention is a predetermined reference means, acquires related information including other medias, it is carried out based on the information which gave predetermined priority, is displayed, and acquires related information from the program information screen of the predetermined display status continuously repeatedly according to feedback designation of a new predetermined user.

[0124] Moreover, from the information which received designation of a user, an automatic reference operation of program related information is started with the keyword information accumulated from the program viewing-and-listening history of a user's past, and its weighting coefficient, and this is that the aforementioned keyword information to reference media decision / control means is simultaneous about two or more arbitrary channels and which arbitrary in which the object media, especially the which in which two or more reference is possible are possible, or a thing which starts an automatic reference operation one by one. And distinction of whether program related information, the reference agreement information, etc. are included in the concerned media is performed by the program information collating distinction means for every reference media by purpose information distinction / capture means optimized for every object media.

[0125] It is extracted, when program related information, the reference agreement information, etc. were included and it is distinguished. Furthermore, a collating with other informations etc. sake, By being temporarily stored in a storage means for every

reference media, and collating the reference information from the media of these pluralities An optimum information is extracted, and after automatic reference of program related information is completed based on the data contained in this reference information, a program list, related information, etc. are displayed on the screen of a display means.

[0126] If determine or reserve a reception of a program, an information is not saved or a user is not pleased with reference to these displayed informations, he operates it so that the next program candidate's information may be displayed. Moreover, in that case, the direct input of the keyword can be carried out, or it can choose from on a screen and the following program information retrieval can be performed.

[0127] In addition, although a program retrieval system is described by the example of this invention as an example within an environment for home use, it may be easily recognized by this contractor also by the case of other environments (for example, for businesses).

[0128] Although this invention was shown and explained as the technique for dealing with an external service menu by the domestic system, and an embodiment about equipment, the thing this invention was indicated to be here and which is limited in detail is not meant. Various alterations may be performed, without being within the limits of the equivalent of a claim, and deviating from the pneuma of this invention on the contrary.

[0129]

[Effect of the Invention] As mentioned above, as explained in full detail, according to this invention, a broadcast service, a program media, a distribution contents, etc. cross between medias, and a user can do program information retrieval from the unitary information source by the favorite common keyword on operation, without being conscious of a media.

[0130] Moreover, learning, and the contents and program as which a user wants to database-ize and to regard the information to origin automatically can be sponsored for liking of a user by the user side, without applying reference time.